# Candidate Information

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| **Position:** | Research Fellow |
| **School/Department:** | School of Natural and Built Environment |
| **Reference:** | 25/112738 |
| **Closing Date:** | Monday 11 August 2025 |
| **Salary:** | £41,519 per annum. |
| **Anticipated Interview Date:** | Wednesday 27 August 2025 |
| **Duration:** | 6 Months |

## JOB PURPOSE:

For the vision and impact of Population based structural health monitoring (PBSHM) to be fully realised for bridges, an understanding of the range of responses that can be expected from ‘similar’ bridges is an important step. Therefore the key aspects of this role are; (1) working with field measured bridge data, both historic and recent, to understand the range of responses that can reasonably be expected from similar bridges, (2) working with a population of laboratory scale bridges in a controlled laboratory environment to examine the feasibility of applying transfer learning to a population of similar bridges.

### MAJOR DUTIES:

1. Create a framework/evidenced examples that will allow other researchers see the range of responses that ‘similar’ bridges will likely exhibit, particularly where this framework is evidenced using field data.
2. Create, the laboratory scale bridge experiments needed to trial the feasibility of applying transfer learning to a population of similar bridges.
3. Carry out analyses, critical evaluations, and interpretations using methodologies and other techniques appropriate to area of research.
4. Present regular progress reports on research to members of the research group or to external audiences to disseminate and publicise research findings.
5. Prepare, in consultation with the grant holders, material for publication in national and international journals and presentations at international conferences.
6. Assist grant holder in the preparation of funding proposals and applications to external bodies.
7. Carry out routine administrative tasks associated with the research project/s to ensure that project/s are completed on time and within budget. These might include organisation of project meetings and documentation, financial control, risk assessment of research activities.
8. Carry out occasional undergraduate and/or postgraduate supervision, demonstrating or teaching duties within the post holder’s area of expertise and under the direct guidance of a member of academic staff.
9. Read academic papers, journals and textbooks to keep abreast of developments in own specialism and related disciplines.
10. Engaging with infrastructure owners and other project partners is an important part of the role so ability to travel for extended periods including secondment/extended visits to project partners is expected.

### ESSENTIAL CRITERIA:

1. Normally have or be about to obtain a relevant PhD. in Civil Engineering.

2. Specific, relevant research experience in population-based SHM of bridges to include:
   - Proven track record of working with infrastructure owners to organise field tests for bridges.
   - Demonstrable experience of organising and carrying out field testing and instrumentation of bridges to determine static response.
   - Demonstrable experience in processing bridge acceleration data to calculate displacement.
   - Coding skills in Matlab/Python for processing/analysing data measured in the field.
   - Experience with working with public bodies to get access to historic bridge data.
   - Undertaking analyses, critical evaluation and interpretations of historic bridge data, (both static and dynamic data).
   - Expertise in finite element modelling of bridges.
3. Specific, relevant research experience in population-based SHM of bridges to include:
   - Designing laboratory scale bridge structures, where design includes finite element modelling of the bridge and preparing fabrication drawings.
   - Designing instrumentation layout for modal testing of laboratory scale bridges on a shake table.
   - Experience of testing laboratory scale bridges in an environmental chamber.
   - Working effectively as part of a research team in the development and promotion of the research theme.
   - Publication record commensurate with stage of career.
4. Ability to contribute to broader management and administrative processes.
5. Ability to contribute to the School's outreach programme by links with industry, community groups, etc.
6. Sufficient breadth and depth of specialist knowledge in bridge population based structural health monitoring to work within this research programme.
7. Practical problem-solving skills, independence of thought and initiative.
8. Ability to assess and organise resources.
9. Ability to communicate complex information in English effectively in oral and written format.
10. Ability to build relationships to develop internal and external networks.
11. Demonstrable intellectual ability.
12. Commitment to continuous professional development.
13. Must hold a valid driving licence and have access to transport or the ability to meet the mobility requirements of the post.

**DESIRABLE CRITERIA:**

1. Strong publication record commensurate with stage of career.
2. Some experience/knowledge on the topic of applying transfer learning to pairs of similar bridges.
3. Participation in UKRI projects.

**ADDITIONAL INFORMATION:**

Informal enquiries can be directed to: Dr David Hester - d.hester@qub.ac.uk.